

# Hyperspectral Longwave Infrared Focal Plane Array and Camera Based on Quantum Well Infrared Photodetectors, Phase I

Completed Technology Project (2009 - 2009)



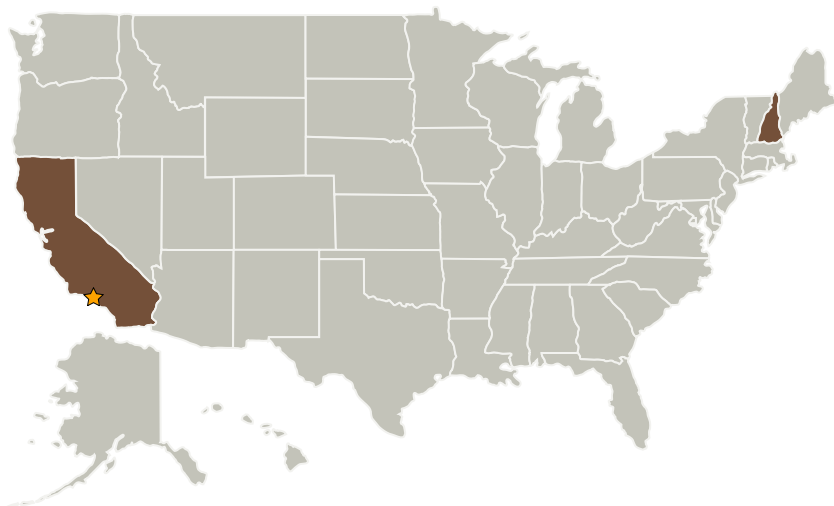
## Project Introduction

We propose to develop a hyperspectral focal plane array and camera imaging in a large number of sharp hyperspectral bands in the thermal infrared. The camera is particularly suitable for the multispectral thermal infrared (TIR) imager of NASA's HypIRI Mission. In Phase 1, we will develop a crucial camera component: a 640x512 focal plane array (FPA) with 8 - 12 micron broadband longwave spectral response. In Phase 2, we will integrate the FPA with a linear variable filter in a dewar cooler assembly and package the resulting sensor engine with electronics and optics into a compact portable camera. A sample FPA will be delivered at the end of Phase 1. The camera, featuring digital and analog video outputs, will be delivered to NASA at the end of Phase 2 for field testing.

## Anticipated Benefits

1) Gas sensing (e.g. for the petrochemical industry). 2) Security and surveillance. 3) Thermography. 4) Medical imaging.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory (JPL)	Lead Organization	NASA Center	Pasadena, California
QmagiQ, LLC	Supporting Organization	Industry	Nashua, New Hampshire

Primary U.S. Work Locations	
California	New Hampshire

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Project Manager:

Celestino Jun Rosca

### Principal Investigator:

Mani Sundaram

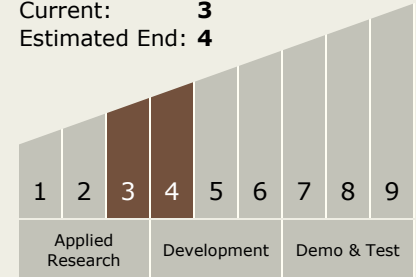
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## Technology Maturity (TRL)

Start: **3**  
Current: **3**  
Estimated End: **4**



## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.1 Detectors and Focal Planes